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03/18/2004

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EXAMINER

MONDT, JOHANNES P

ART UNIT

PAPER NUMBER

3663

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/804,713	Applicant(s) YANG, CHAO-HSIANG	
	Examiner Johannes P. Mondt	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,10-13,22-25 and 28-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6,10-13,22-25 and 28-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Amendment filed 12/07/2006 forms the basis for this office action. In said Amendment applicants substantially amended claims 1-3, 6, 10-13, 22-25 and 28, and added new claims 28-34. Applicants also amended the Drawings and the Specification. Applicants cancelled claims 9, 14 and 16-20 (claims 4-5, 7-815 and 21 previously having been cancelled).

The Amendment to the Drawings and the Specification contains new matter. See below under Drawings and Specification.

Further comments on Remarks submitted with said Amendment are included below under "Response to Arguments".

Election/Restrictions

Applicant previously received an action on the merits including claims drawn to a non-elected Species (Species 2), because Species 2 does not teach a "fuse providing electrical communication between said at least two top metal lines by spanning a distance between said at least two top metal lines" as already recited in a previous version of claim 1. The election-of-species requirement has thus been inadvertently withdrawn. However, Applicant is held to the existence of the two different Species, as clearly disclosed and defined in the election-of-species requirement mailed 7/18/2006, the existence of said Species not having been contested at all in the Response to said election-of-species requirement as filed 8/14/06. Applicant thus needs to restrict claim language to being drawn either to Species 1 or Species 2.

Drawings

The Replacement Sheet for Figure 2 is accepted.

However, the New Sheet for Figure 2A, a new Drawing, is objected to for introducing new matter: in the Detailed Description of the invention, the embodiment of Figure 2 in the original Specification is not disclosed to comprise the fuse to provide electrical communication between two top metal lines.

The Replacement Sheet for the Drawing of Figure 3 is objected to because the cross section taken along A now introduced by amendment thus linking Figure 3 to Figure 2 is entirely new: Figure 3 in the original Specification is a different, "alternative" embodiment (see page 10, [0016] of the original Specification). Attention is furthermore drawn to the impossibility of the interpretation of Figure 2A as being taken, as cross section, along the line indicated by 'A' in Figure 3, because Figure 2 shows a plurality of intermetal dielectric layers and a plurality of passivation layers where Figure 3 shows merely a single dielectric 28.

Specification

The amendment filed 12/07/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. The MPEP, 35 U.S.C. 132(a), states that no amendment shall introduce new matter into the disclosure of the invention. The added material not supported by the original disclosure is as follows:

(a) The Amendment to [0025] is objected to because Drawing of new Figure 2A is objected to for introducing new matter, as discussed above under 'Drawings'.

(b) The Amendment to [0026] is objected to for introducing new matter because Figure 3 was disclosed, in the original Specification, to be an "alternative embodiment", instead of an expanded view linked to the embodiment of Figure 2 through the indication of line 'A' along which the cross section was taken to produce view as given by Figure 2A of the embodiment of Figure 2.

(c) The Amendment to [0027] is objected to for introducing new matter linking the device of Figure 3, described in the original Specification to be an alternative embodiment, to the embodiment of Figure 2 through the newly introduced text describing the direct linkage of Figures 2 and 3 as pertaining to a single device.

Applicant is required to cancel all new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 1-3** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Specifically, neither the embodiment of Figure 2 nor the embodiment of Figure 3 discloses the claimed invention of a semiconductor device according to claim 1 because the embodiment of Figure 2 lacks the fuse "providing electrical communication between

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said at least two metal lines by spanning a distance between said at least two top metal lines" (claim 1, lines 12-14), - fuse material 66 evidently restricted to the right-hand-side portion of topmost metallization layer 64 only, while the embodiment of Figure 3 lacks the "plurality of dielectric layers comprising a lowermost passivation layer on said fuse" (claim 1, lines 15-16).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. ***Claims 1-3, 31 and 33*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (US 20022002/0079552 A1) in view of Tatematsu et al (US 2002/0153588 A1).

Koike teaches as a semiconductor device fuse structure *capable* of preventing a dielectric layer from cracking at corner portions of associated metallization structures, comprising:

- a substrate 11 ([0053]);
- a top inter-metal dielectric layer 29 ([0056]) on said substrate;
- at least two top metal lines comprising copper (copper interconnection 32 centrally located in the lateral sense within 29 ([0056]) in said top inter-metal dielectric layer, each of said at least two top metal lines comprising a topmost metal layer in

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electrical communication with underlying copper interconnect structures 21 extending through a plurality of inter-metal dielectric layers 19, 22 and 23;

a fuse comprising metal on said top inter-metal dielectric layer (the portion of said metal spanning the distance between said two top metal lines and located directly vertically underneath opening 110), said fuse providing electrical communication between said at least two top metal lines by spanning a distance between said at least two top metal lines (by being integrally connected to said top metal lines; see Figure 15, e.g.);

a plurality of dielectric layers 39/42 ([0056]-[0058] and [0012]: polyimide resin is a dielectric) comprising a lowermost passivation layer 34 on said fuse; and

a window 70 or 110 (see [0012] and [0067], and Figures 12-15) formed through a thickness portion of the plurality of dielectric layers 39/42 to said lowermost passivation layer 34, said window positioned over a top portion of said fuse (Figures 12-15).

Koike does not necessarily teach the limitation that said fuse comprises aluminum.

However, it would have been obvious to include said limitation in view of Tatematsu et al, who, in a patent application drawn to a semiconductor device with laser blown fuse, hence analogous art, teach that said fuse 15 (see [0057] and [0071]) may be made of aluminum (or, inter alia: copper), hence providing evidence of aluminum being understood in the prior art to be suitable, just as copper is suitable, for fuse material. Applicant is reminded that Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make

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a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

Finally, the pre-amble limitation "to prevent dielectric layer cracking at corner portions of associated metallization structures", aside from not being in the bulk of the claim, constitutes functional language. Applicant is reminded that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

On claim 2: said (lowermost) passivation layer on said fuse comprises a dielectric layer (34 is a dielectric layer; [0057]-[0058]; also: [0012]).

On claim 3: said dielectric layer comprises silicon dioxide.(see layer 34 ([0057])).

On claim 31: each of said topmost metallization lines comprise a dual damascene structure ([0055]).

On claim 32: in the combined invention by Koike et al and Tatematsu et al the at least two top metal lines have a thickness greater than that of the aluminum

fuse because the fuse bridging the topmost metal lines in Figure 15 is thinner than said topmost metal lines, because dielectric 29 is visible underneath the bridging portion between said topmost metal lines

Claims 6, 10, 11, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (US 2002/0079552 A1) in view of Tatematsu et al (US 2002/0153588 A1) and Hatano et al (7,067,897 B2).

On claim 6: Koike teaches a semiconductor device fuse structure capable of preventing low dielectric material layer cracking at corner portions of associated metallization structures comprising:

two separated and respectively interconnected metallization structures, each comprising copper (portions of 21 extending into 23 and 29) ([0054]-[0057]), and extending through a plurality of low-k (i.e., low dielectric) material inter-metal dielectric layers 23 and 29 ([0055]-[0056]) (note that SiO₂ has k=3.9; see Sze, page 545);

wherein a fuse comprising metal (metal interconnection copper vias in 29 (Figure 15) vertically below fuse window opening 70 or 110) ([0012] and [0067]) extends between and electrically interconnects metal lines comprising each of the metallization structures in an inter-metal dielectric layer 29 (N.B.: in view of window opening 70 or 110 34 is not a layer but instead a region); and

a window (70 or 110) is disposed over a top portion of said fuse (Figures 12-15 e.g.), said window extending through a thickness portion of a dielectric layer 39 (PSG film, see [0058]) to a silicon dioxide layer 34 ([0057]) on said fuse.

Koike does not necessarily teach the limitation that said fuse to comprise aluminum. However, it would have been obvious to include said limitation in view of Tatematsu et al, who, in a patent application drawn to a semiconductor device with laser blown fuse, hence analogous art, teach that said fuse 15 may be made of aluminum (or, inter alia: copper), hence providing evidence of aluminum being understood in the prior art to be suitable, just as copper is suitable, for fuse material. Applicant is reminded that Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

Finally, although neither Koike nor Tatematsu et al necessarily disclose the dielectric constant to be in the range implied by the specification, namely k ranging from 2.0 to 3.6, it would have been obvious to include said range in view of Hatano et al, who, in a patent on a semiconductor device with fuse blown by laser radiation (title, abstract and "Summary of the Invention"), hence analogous art, teach low- k dielectric material for multiple inter-metal dielectric films 4 as an equivalent alternative to SiO_2 (see col. 5, l. 59 col. 6, l. 7). Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

On claim 10: the semiconductor device further comprises an etch stop layer 33 ([0056]) (N.B.: silicon nitride is suitable as etch stop material as admitted by applicant in

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the specification on page 11) on an upper main face and a lower main face (etch stop material silicon nitride forming layer 28, see [0055]) of the inter-metal dielectric layer 29.

On claim 11: the semiconductor device further comprises a plug extending between the first metal layer and the topmost metal layer (said plug is via connecting said first metal layer and topmost metal layer as defined as follows: each of the metallization structures include a first metal layer (laterally elongated portion within 23) and a topmost metal layer (laterally extending edge portions within 29), each of said topmost metal layers connected to said fuse (see, e.g., Figure 15).

On claim 33: each of said metal lines in Koike et al comprises a dual damascene structure ([0055]).

On claim 34: in the combined invention by Koike et al, Tatematsu et al and Hatano et al the at least two top metal lines have a thickness greater than that of the aluminum fuse, because the fuse bridging the topmost metal lines in Figure 15 is thinner than said topmost metal lines, because dielectric 29 is visible underneath the bridging portion between said topmost metal lines

2. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike, Tatematsu et al and Hatano et al as applied to claim 6 above, and further in view of Admitted Prior Art by Applicant.

Neither Koike nor Tatematsu et al nor Hatano et al necessarily disclose a thickness or thickness range for said aluminum fuse. However, it would have been obvious to include the further limitation on the range of the thickness of the fuse in view of Admitted Prior Art by Applicant (page 3), who teach a range between 500 Angstrom

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and 5000 Angstrom, which range overlaps with the range as claimed (1000-7000 Angstrom). Applicant is reminded that it has been held that a *prima facie* case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art or when the ranges of a claimed composition do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. *In re Peterson*, 65 USPQ2d 1379 (CA FC 2003).

3. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kioke, Tatematsu et al and Hatano et al as applied to claim 6 above, and further in view of Liaw (6,255,715) (previously made of record).

As detailed above, claim 6 is unpatentable over Koike, Tatematsu et al, and Hatano et al, none of these references necessarily teaching the further limitation as defined by claim 13. *However, it would have been obvious to include said further limitation in view of Liaw et al*, who, in a patent on a fuse with guard ring for a semiconductor device or integrated circuit (title, abstract and col. 1, l. 5-18), hence closely related to the art of Koike, teach the thickness of the metal line of the metallization structure 54 to be in the range of between about 2000 and 8000 Å (col. 6, l. 25-30). *Applicant is reminded* that it has been held that a *prima facie* case of obviousness typically exists when the ranges as claimed overlap the ranges disclosed in the prior art or when the ranges as claimed do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. *In re Peterson*, 65 USPQ2d 1379 (CA FC 2003).

4. **Claims 22-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike and Tatematsu et al as applied to claim 1 and further in view of Mori (US 2003/0052385 A1).

On claim 22: The semiconductor device defined by the above-stated combination of Koike in view of Tatematsu et al, as delineated above in the rejection of claim 1 can be used and is advocated to be used (Koike, [0017]) as a method of blowing a fuse in a semiconductor device by directing a laser beam at the fuse window.

Neither Koike nor Tatematsu et al necessarily limit the range of the wavelength as claimed. However, as shown by Mori, a range including 1300 nm = 1.3 μ m is conventional for blowing aluminum fuse (20) (see [0051]).

Applicant is reminded that it has been held that a *prima facie* case of obviousness typically exists when the ranges as claimed overlap the ranges disclosed in the prior art or when the ranges as do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003). In the underlying case said ranges clearly and substantially overlap.

On claim 23: Koike teaches a fuse passivation layer (either 33 or 34) ([0056]-[0057]) on an upper face of the fuse.

On claim 24: the passivation layer comprises silicon dioxide (see layer 34 in Koike ([0057])).

On claim 25: In the combined invention defined under the rejection of claim 1, an upper face of the fuse comprises aluminum because the fuse taught by Tatematsu et al comprises aluminum ([0057] and [0071]).

5. **Claims 28-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (US 2002/ 0079552 A1) in view of Tatematsu et al (US 2002/0153588 A1), Hatano et al (7,067,897 B2) and Mori (US 2003/0052385 A1).

Koike teaches a method of blowing a fuse structure capable of preventing low-k dielectric material layer cracking at corner portions of associated metallization structures, said fuse structure comprising:

a fuse window (70 or 110; Figures 12-15) formed through at least one dielectric layer (38, 39 or both; see [0056]-[0057]) overlying an upper face of a metal fuse (central portion vertically underneath said fuse window; Figure 15) to expose a passivation layer 34 comprising silicon dioxide ([0057]; 34 is clearly exposed, having an exposed upper main surface section at the fuse window) on said fuse (Figure 15), said fuse window selectively disposed over said upper face of said metal fuse (Figure 15); said metal fuse spanning a distance between two copper metallization lines (central copper portions in 23 and 29; Figure 15 and each comprising interconnected damascene structures (see [0054]) extending through a plurality of low-dielectric material layers (19, 23, 29; see [0054]-[0056])); wherein said method comprises directing a laser beam onto said fuse through said exposed silicon dioxide passivation layer ([0005]).

Koike does not necessarily teach said metal fuse to be an aluminum fuse.

However, it would have been obvious to include said limitation in view of Tatematsu et al, who, in a patent application drawn to a semiconductor device with laser blown fuse, hence analogous art, teach that said fuse 15 (see [0057] and [0071]) may be made of aluminum (or, inter alia: copper), hence providing evidence of aluminum being understood in the prior art to be suitable, just as copper is suitable, for fuse material. Applicant is reminded that Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

Koike does not necessarily teach the dielectric constant to be in the range implied by the specification, namely k ranging from 2.0 to 3.6, it would have been obvious to include said range in view of Hatano et al, who, in a patent on a semiconductor device with fuse blown by laser radiation (title, abstract and "Summary of the Invention"), hence analogous art, teach low-k dielectric material for multiple inter-metal dielectric films 4 as an equivalent alternative to SiO₂ (see col. 5, l. 59 col. 6, l. 7). Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

Koike does not necessarily limit the range of the wavelength as claimed.

However, as shown by Mori, a range including 1300 nm = 1.3 μ m is conventional for

blowing aluminum fuse (20) (see [0051]). Applicant is reminded that it has been held that a *prima facie* case of obviousness typically exists when the ranges as claimed overlap the ranges disclosed in the prior art or when the ranges as do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003). In the underlying case said ranges clearly and substantially overlap.

On claim 29: the damascene structures by Koike et al comprise dual damascene structures ([0055]).

On claim 30: the fuse bridging the topmost metallization lines in Koike et al is thinner than said topmost metallization lines (see Figure 15, e.g., showing dielectric 29 underneath said fuse but underneath said topmost metallization lines).

Response to Arguments

Applicant's arguments filed 12/07/2006 have been fully considered but they are not persuasive. Applicant substantially amended all elected claims at least through substantial amendment of independent claims 1, 6, and 28, and added new claims 29-34, of which the rejections are included overleaf.

First: The Amendment of the Specification and Drawings as filed with said Amendment introduces new matter as explained above (see Specification and Drawings).

Second: With regard to the Rejections under 35 USC 103(a), Applicant on pages 18-19 does not explain why aluminum "would not work with the copper dual damascene process of Koike". On the other hand, examiner had explained why the material

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selection of aluminum is entirely obvious, to which Applicant does not appear to directly respond. Therefore, the traverse on this ground is not persuasive.

Third: With regard to Applicant's argument (page 20) that in Tatematsu et al the via interconnects are made of tungsten, Applicant is nevertheless admitting that a portion thereof, namely the plugs (protective members 14) are made of copper, while the statement is factually incorrect for elements 13, as they are taught to be made of aluminum "or other metallic materials" ([0056]). Moreover, the rejection does not rely on Tatematsu et al for "copper" as the material embodiment of the underlying interconnect structures, instead relying on the primary reference Koike et al (see rejection). Therefore, said argument is not persuasive.

Fourth: Applicant's argument (page 20) that Tatematsu et al "do not teach a fuse blowing window over the fuses" but rather a "fuse by thermal explosion", please see disclosure of the field of invention by Tatematsu et al ([0003]), as well as the figures (including front figure) and descriptions thereof). Therefore, being factually incorrect, said argument is not persuasive.

Fifth: Applicant's argument (page 20) that there appears no motivation to combine appears to rely only on a "different principle of operation" (page 20); however, further scrutiny of Applicant's application reveals the distinction drawn is one of process of making (dual damascene process) rather than function; while in both cases the patentable weight of all limitations is necessarily restricted to the

Sixth: Once again, Applicant does not explain why "any attempt to combine the single damascene fuses and tungsten vias of Tatematsu et al would not work (page 21). Therefore, Applicant's argument fails to persuade.

Seventh: Counter to Applicant's argument (pages 21-22) that, even *arguendo*, a proper motivation for combining does not produce Applicant's disclosed invention, be referred to the rejections overleaf, quite apart from the overstatement implied by the introduction of new matter (see rejection under 35 USC 112, first paragraph overleaf).

For the above reasons, the claims previously rejected stand rejected over the same art as applied before. The new claims have been examined for the first time.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM
March 3, 2007

Primary Patent Examiner:


Johannes Mondt (TC 3600; Art Unit: 3663)